

NATIONAL TRANSPORTATION SAFETY BOARD  
OFFICE OF MARINE SAFETY  
WASHINGTON, D.C. 20594



# ERRATA

## Group Chairman's Factual Report SURVIVAL FACTORS

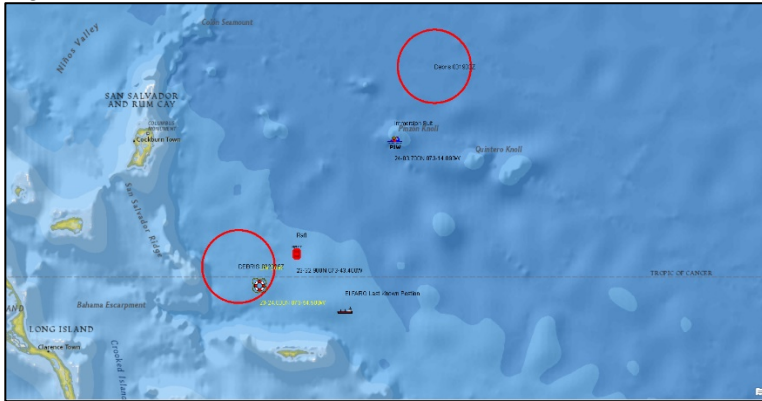

*El Faro*  
DCA16MM001

| Page/<br>Line | Original  | Correction  |
|---------------|---|---|
| 3/12-13       | On Sunday, October 4, a damaged lifeboat and two damaged liferafts were located.                    | Replace with: On Saturday, October 3 two debris fields were discovered. On Sunday, October 4, a damaged lifeboat and a damaged liferaft were located. |
| 3/14          | A Coast Guard swimmer tagged the body...  | Replace with: The Coast Guard helicopter dropped a locator buoy near the body...  |
| 3/15          | tagged  | Delete: tagged.   |
| 3/16          | No signs of life were found, and on Monday October 5, a debris field and oil slick were discovered. | Replace with: No signs of life were found, and on Monday, October 5, two oil slicks were discovered.  |

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| 5/4                    | ...in February and May 2016.        | Replace with: ...in February 2016, May 2016, and February 2017.   |
| 8/10<br>through<br>9/3 | for assistance in reaching the DPA. | <p>Insert after “DPA”:<br/> The call center recorded the conversation between the call center’s operator and the captain. The recording was played during the Coast Guard MBI and was transcribed (without times). The <i>El Faro</i>’s VDR recorded the captain’s part of the conversation with the DPA, with times to a tenth of a second. These sources are combined in Table 1.</p> <p>Replace all entries in Table 1 as follows:</p> <p>07:01:00.0    Operator    Okay sir.</p> <p>07:01:04.9    Captain    This is a marine emergency. yes this is a—<br/> ah marine emergency and I am tryin’ to uh also notify a Q-I.</p> <p>7:01:35.8    Captain    Are you connecting me (through) to a Q-I?</p> <p>07:01:38.0    Operator    That’s what I’m getting ready now. We’re seeing who is on call and I’m going to get your right to them, give me one second sir, I’m going to put you on a quick hold. So one moment please. Okay, sir. I just need your name please.</p> <p>07:02:27.9    Captain    Yes ma’am my name is [Name, first - last.]</p> <p>07:02:31.0    Operator    Your rank?</p> <p>07:02:41.9    Captain    Ship’s master.</p> <p>07:02:50.0    Operator    Okay thank you. Ship’s name?</p> <p>07:02:52.1    Captain    El Faro.</p> |

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|               |          | <p>07:02:55.0 Operator Spell that. E-L.</p> <p>07:02:58.4 Captain (uh man/uh ma'am) the cl- the clock is ticking- can I please speak with (the/a) Q-I?</p> <p>07:03:04.9 Captain El Faro. echo- lima- space- foxtrot- alpha- romeo- oscar. El Faro.</p> <p>07:03:16 Operator Okay and in case I lose you what is your phone number please.</p> <p>07:03:25.4 Captain Phone number.</p> <p>07:03:27.0 Captain [phone number redacted.]</p> <p>07:03:39.0 Operator Got it.</p> <p>07:03:43.0 Captain That's my globe and let me get you the mini-M.</p> <p>07:03:47.9 Captain You ready to copy?</p> <p>07:03:50.0 Operator Yes.</p> <p>07:03:50.9 Captain [phone number redacted]</p> <p>0704:01.0 Operator Got it sir. Again I'm going to get you reached right now, one moment please.</p> <p>[From 07:04:38.1 to 07:05:16.1, captain talks to chief mate on VHF radio – see VDR audio transcript factual report, pp. 472-473.]</p> |



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|                        |                                | <p>07:05:19.0 Operator I'm going to connect you now okay. Hi good morning my name is ***** (talking to DPA). Just give me one moment I'm going to try to connect you now. Okay. Mr. *****?</p> <p>07:05:28.5 Captain okay.</p> <p>07:05:31.0 Operator Okay, one moment please. Thank you for waiting.</p> <p>07:05:52.7 Captain ? *. [Oh God – from MBI transcripts]</p> <p>07:05:54.0 Operator Just briefly what is your problem you're having?</p> <p>07:05:59.6 Captain I have a marine emergency and I would like to speak with a Q-I. we had a hull breach– a scuttle blew open during a storm– we have water down in three hold– we have a heavy list– we've lost the main propulsion unit– the engineers can not get it goin'. Can I speak with a Q-I please?</p> <p>07:06:21.0 Operator Yes, thank you so much, one moment.</p> <p>End</p> |
| 9/5<br>through<br>10/8 | in an unrecorded conversation. | <p>Replace with: in a conversation recorded by the vessel's VDR.</p> <p>Delete rest of text, through p. 10, line 8.</p> <p>Replace with:</p> <p>The captain's part of the conversation has been added to this report's addendum Table 1.</p>   |

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| 13/3          | at 1342, the ABS  | Change time: at 1130, the ABS  |
| 22/1-4        | A Coast Guard HC-130 aircraft located a debris field 120 nm northeast of Crooked Island. A Coast Guard MH-60 helicopter relocated the debris field and located three liferings, one of which was stenciled <i>El Faro</i> . The helicopter located a second debris field 90 nm northeast of Crooked Island of small unidentified objects believed to be packing material. | Make changes to: At 1503 EDT a Coast Guard HC-130 aircraft located the NE downrange debris field 120 nm northeast of Crooked Island. A Coast Guard MH-60 helicopter relocated the debris field and located three liferings, one of which was stenciled <i>El Faro</i> . At 1925 EDT the helicopter located the SW main debris field (closest to the position where <i>El Faro</i> sank) 90 nm northeast of Crooked Island of small unidentified objects believed to be packing material. |
| 26/6-7        | The <i>Northland</i> could not find the second liferaft, whose position the Navy P-8 had reported at 1145 to be 23°24.7'N, 073°54.9'W.  | The USCG later determined the second reported liferaft was the starboard lifeboat. The time of discovery and positions were the same.  |
| 27            | Figure 11<br>  | Replace Figure 11<br> <p>Replace with Figure 11. The red “X” is the <i>El Faro</i>’s last position recorded on the VDR. The red circles are the two debris fields. The</p>   |

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|                    | <p>Figure 11. Last known position of <i>El Faro</i> (ship symbol) and two debris fields (red circles). First debris field was located bearing 293° true at 31 nm from the last known position; second debris field was located bearing 020° true at 72 nm from <i>El Faro</i>'s last known position. Each debris field had a radius of about 10 nm; the distance between the debris fields was 76 nm. Major survival gear found were lifeboat (lifering symbol), liferaft (red raft symbol), and immersion suit with human remains (PIW symbol). (Coast Guard graphic)</p> | <p>debris field to the southwest is the main debris where the vessel sank. The second debris field to the northeast (044° true at 77 nm) is the “down range” debris field. Each debris field had a radius of about 10 nm. Major survival gear found were the starboard lifeboat, liferaft (red dot), an immersion suit with human remains (blue and red “X”), and two immersion suits between the two debris fields. (Coast Guard graphic)</p>   |
| 29/16              | ...covering and area of about 20 nm.   | Change to: ...covering an area of about 20 nm in the SW main debris field  |
| 34/16-19<br>35/1-2 | <p>5.5. Survival Gear<br/> <i>El Faro</i> was required to carry certain survival gear by its Coast Guard certificate of inspection (COI), last issued on February 22, 2011. The type and quantity of survival equipment carried on the vessel, as listed by ABS in its “Record of Approved Cargo Ship Safety Equipment” dated February 23, 2006 (with equipment updates on February 23, 2007, February 2, 2009, and April 2, 2010), are shown in Table 3. The table also indicates whether the equipment was detected or recovered after the accident.</p>                 | <p>5.5. Survival Gear<br/> <i>El Faro</i> was required to carry certain survival gear by its Coast Guard certificate of inspection (COI), last issued on February 22, 2011. Table 3 shows the type and quantity of survival equipment carried on the vessel, as listed by ABS in its “Record of Approved Cargo Ship Safety Equipment” dated February 23, 2006 (with equipment updates on February 23, 2007, February 2, 2009, and April 2, 2010). Quantities are updated based on company maintenance records. The table indicates whether the equipment was detected or recovered after the accident.</p> |
| 35/3               | <p>Table 3, column 4 (Onboard)</p> <p>Column head: Onboard per ABS Records</p> <p>Life preservers: 46<br/> Ring buoys: 30<br/> With lights: --</p>   | <p>Change column head to: Onboard</p> <p>Change entries as follows:<br/> Life preservers: 65<br/> Ring buoys: 31<br/> With lights: (15 [2 with light and smoke])</p>   |

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|               | <p>With line attached: --<br/>Other: --<br/>Immersion suits 50</p> <p>Table 3, column 6 (Recovered)<br/>Life preservers (lifejackets): 1</p>  | <p>With throwing line attached: (2)<br/>Other: (14 [1 is a spare])<br/>Immersion suits: 51</p> <p>Change entry as follows:<br/>Life preservers (lifejackets): 0</p>  |
| 37/5-6        | <p>Table 4, column 3<br/>“Manufacture Date” for rows “Liferaft 1” and “Liferaft 2”:<br/>11/2005</p>   | <p>Correct “Manufacture Date” for “Liferaft 1” and “Liferaft 2”:<br/>10/2005</p>   |
| 37/5-9        | <p>Table 4, column 5 “Characteristics” for rows “Liferaft 1” through<br/>“Liferaft 5”</p>   | <p>Add between “Serial no.” and “Capacity” in each row:<br/>Emergency pack: SOLAS A</p> <p>And beneath “Capacity” in each row:<br/>Liferaft 1: packed weight 380 lbs.<br/>Liferaft 2: packed weight 380 lbs.<br/>Liferaft 3: packed weight 155 lbs.<br/>Liferaft 4: packed weight 406 lbs.<br/>Liferaft 5: packed weight 406 lbs.</p>  |
| 38            | <p>Table 4<br/>Lifejackets, column 1 (Equipment)<br/>Lifejackets, column 5 (Characteristics)</p> <p>Lifebuoys, column 5 (Characteristics)</p> | <p>Delete number <del>(46)</del><br/>Change entries, add text: Location: crew quarters (41); bridge (3);<br/>engine room control station (3); bow (2); port lifeboat (2); starboard<br/>lifeboat (2); gear locker spares (12)</p> <p>Change entries:<br/>Type: with self-igniting ACR lights (13); quick-release with light<br/>smoke signals (2); with buoyant line (2); without attachments (13);<br/>and spare (1).</p> |

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|               | <p>Immersion suits, column 2 (Manufacturer)<br/>Various:<br/>Sterns, Baileys, Fitz-Wright, O’Neil, Mustang, (unknown for 4 new suits)</p> <p>Immersion suits, column 4 (Approval)</p>   | <p>Replace/keep text:<br/>Various:<br/>Imperial, Stearns, Baileys, Fitzwright, Revere, Kent (4 new XL suits)</p> <p>Replace text with:<br/>Coast Guard no. 160.071/1/2<br/>Issued: 9/1/1987<br/>Exp: 9/1/1992<br/>Status: “Former—may use”</p>   |
| 39/5-6        | <p>Table note b:<br/>b COA not found on Coast Guard database for series 160.033 (Lifeboat Mechanical Disengaging Apparatus) or series 160.133 (Lifeboat Release Mechanism [SOLAS]). Request has been submitted to CG-ENG-4 (Type Approvals, Lifesaving &amp; Fire Safety Division).</p>   | <p>Change note b to:<br/>b No information available. The COA for the release hook had been removed from Coast Guard files but was not found in Coast Guard records deposited at the National Archives.</p>   |
| 48/9-12       | <p>However, but according to current liferaft inspection records, the 6-person liferaft actually on <i>El Faro</i> was a Viking liferaft (serial number 06DK+11355928) that was inspected on May 18, 2015, and due for a 12-month inspection in May 2016 (figure 23 shows a Viking liferaft of the type carried on <i>El Faro</i>).</p> | <p>Insert manufacture date:<br/>However, according to current liferaft inspection records, the 6-person liferaft on <i>El Faro</i> was a Viking liferaft (serial number 06DK+11355928), was manufactured in November 2010, was inspected on May 18, 2015, and due for a 12-month inspection in May 2016 (figure 23 shows a Viking liferaft of the type carried on <i>El Faro</i>).</p> |
| 49            | <p>Figure 23</p>  | <p>Replace Figure 23 with:</p>   |

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|               |  <p>Throw-overboard liferafts are stored in containers on deck and inflate in the water when the painter line is pulled.</p> | <p><b>Throw-overboard liferafts, standard</b></p>  <p>Throw-overboard liferafts are stored in containers on deck and inflate in the water when the painter line is pulled.</p> <p>Standard SOLAS liferafts are available for:<br/>6, 8, 10, 12, 16, 20, 25 and 35 persons.</p> <p>Self-righting liferafts are available in the following sizes:<br/>25, 51, 101 and 151 persons.</p> |
| 49/2          | Figure 23 text: Figure 23. Viking throw-overboard liferaft, self-righting (Viking life-saving equipment illustration) footnote “48”   | Replace text with: Figure 23. Viking throw-overboard liferaft, standard SOLAS type DK (Viking life-saving equipment illustration) footnote “48”   |
| 49/8          | Liferafts   | Add sentence: The throw overboard type 6- and 25-person Viking liferafts in SOLAS A packed condition weigh approximately 155 and 380 pounds respectively. The Elliot 25-person throw-overboard liferaft weighs approximately 406 pounds.  |
| 49            | Footnote 48:<br>Viking Liferafts Catalogue p. 8, downloaded November 10, 2016, at <a href="http://admin.sds.viking-life.com/">admin.sds.viking-life.com/</a>  | Replace Footnote 48 text with:<br>Viking Liferafts Catalogue p. 6, downloaded May 30, 2017, at <a href="http://ipaper.ipapercms.dk/VikingLife/Brochures/TechnicalLiferaft/TechnicalLiferaft/">http://ipaper.ipapercms.dk/VikingLife/Brochures/TechnicalLiferaft/TechnicalLiferaft/</a>  |
| 50/6-7        | “A second liferaft was reported at position 23° 24.7’N, 073° 54.9’W but could not be relocated.”  | Delete sentence.  |
| 50/9-51/2     | Life Preservers (Lifejackets)   | Change as follows:  |

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|               | <p>According to ABS record of approved cargo ship safety equipment, <i>El Faro</i> had on board 46 Safegard Corporation, Model 3 190 or 190T adult life preservers equipped with whistle and light.</p> <p>Forty-one were located in...</p>  | <p>According to ship's records, the <i>El Faro</i> had on board 65 adult life preserves of various manufacturers, equipped with whistle and light.</p> <p>Forty-one were located in crew cabins and the rest in work areas, as follows:<br/>three on the navigation bridge, three in the engine room control station, and two on the bow.</p>  |
| 52/4-6        | <p>Lifebuoys (Ring Buoys)</p> <p>The vessel was equipped with thirty 30-inch orange lifebouys. The lifebuoys were stowed in various locations throughout the vessel. Two with smoke floats were located on the bridge wings. The rest were located on the weather decks: 14 with no attachments, 2 with throwing line, 10 with attached lights, and 2 with buoyant line.</p> | <p>Replace highlighted text with:</p> <p>The vessel was equipped with 31 orange lifebouys, 30-inches in diameter. The lifebuoys were stowed in various locations throughout the vessel. Two with attached lights and smoke floats were located on the bridge wings. The rest were located on the weather decks: 13 with attached lights only, 2 with throwing lines, 13 with no attachments, and 1 spare.</p>  |
| 52/10         | <p>Figure 26 Recovered broken 30-inch lifebuoy stenciled El Morro, photographed in San Juan</p>  | <p>Change text: Recovered broken 30-inch lifebuoy stenciled "S.S. El Morro," "San Juan, P.R."</p>  |
| 53/5-7        | <p>Immersion Suits</p> <p>The vessel was outfitted with 52 to 56 immersion suits. The AMOS maintenance system shows a purchase order for 52 immersion suits for required 2-year inspection and pressure testing on August 14, 2015, and a purchase order for 4 oversize adult immersion suits.</p>   | <p>Replace text with:</p> <p>The vessel was outfitted with 51 immersion suits. The AMOS maintenance system shows a purchase order for 52 immersion suits for required 2-year inspection and pressure-testing on August 6, 2015, by Liferrafts Inc. of Puerto Rico. An email from the <i>El Faro</i> captain to the TOTE port engineer on August 8, 2015, reports 52 immersion suits inspected and tested (47 satisfactory, 5 condemned – manufacturer of condemned suits was not recorded). AMOS recorded a purchase order dated August 19, 2015, for 4 oversize adult immersion suits. <i>El Faro</i> received 4 Kent XL immersion suits. The <i>El Faro</i> ex-chief mate stated in his interview that the new immersion</p> |

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|               |  | suits were received, but he was not sure if they had been stenciled “S.S. <i>El Faro</i> ” before the accident.   |
| 54/10         | Manufacture date 6-85.”  | Insert new paragraph at line 11:<br>According to the monthly maintenance records for June 2015, the recovered immersion suits were spare immersion suits Nos. 48 and 50. Both immersion suits were last inspected and pressure-tested in July 2013 by Liferrafts Inc. of Puerto Rico, and each had a light with an expiration date of April 2016. The maintenance records indicate that the 11 spare immersion suits were stored in the spares locker on the cabin deck, in the athwartships passageway next to fire station 7. |
| 56-57         | Table 5, column 2, Tag No.<br>(7) entries in column: N/A and No tag  | Replace “Tag No.” with “Evidence ID”<br>Replace the (7) entries of “N/A” and “No tag” with “None”   |
| 56            | Table 5, Starboard lifeboat, column 3 (Description)<br>Note: A deployed sea anchor was reported with lifeboat when it was discovered. When it was delivered to Coast Guard Air Station Miami. NTSB investigator found a new Coleman ground cover used for camping, not a sea anchor. | Delete note. Replace with:<br>The sea anchor was tangled/fouled with the sea painter.   |
| 56            | Table 5 Liferaft, column 3 Description<br>Second reported liferaft, reported at 1657 on October 4 by Navy P-8 at 23-24.7N, 073-54.9W, could not be relocated.  | Add after sentence: Second reported liferaft, reported at 1657 on October 4 by Navy P-8 at 23-24.7N, 073-54.9W, could not be relocated. The Coast Guard determined this was the starboard lifeboat—same position and time.  |
| 56            | Table 5  | Insert new row between Liferaft and Immersion suit – 1 of 3:<br>Column 1 (Survival Debris): Life preserver<br>Column 2 (was “Tag No.” now is “Evidence ID”): Mission III, ROV CURV 21, date/time 8/9/2016 09:10:06.   |

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|               |  | Column 3 (Description): Life preserver with reflective material found under debris on aft starboard side of <i>El Faro</i> 's boat deck, near ladder down to cabin deck.   |
| 62/9          | "...and also assigned them to lifeboats."  | Insert sentence after "lifeboats":<br>The company submitted an <i>El Faro</i> station bill that can be found in the docket for this accident and in the addendum.  |
| 63-64         | Table 10. <i>El Yunque</i> station bill for fire and emergency and abandon-ship duties | Replace entire Table 10 with addendum pages 17 to 19: Table 10 (corrected). <i>El Faro</i> station bill for emergency and abandon-ship duties.   |
| 65/10         | The signal to abandon ship was more than six short blasts...                           | Change to: The signal to abandon ship was more than six (seven or more) short blasts...  |
| 74/11-12      | The MEOSAR system is expected to be fully operational in 2018                          | Before this sentence add: MEO early operational capability started on December 13, 2016, with data flow to the Air Force (SAR on land) and Coast Guard (SAR in the water)  |
| 75/3-4        | based on its build date (1975).  | Replace with:<br>based on its delivery date of January 1975. The convention in effect when <i>El Faro</i> 's keel was laid was SOLAS 60. The Coast Guard marine inspector or ABS surveyor on the <i>El Faro</i> and "all ships" cites sections related to lifeboats in SOLAS 74 or SOLAS 74, as amended. (insert footnote)<br><br>Footnote: Email from Coast Guard to NTSB, " <i>El Faro</i> Survival Factors: SOLAS for <i>El Faro</i> open lifeboats," January 13, 2017. |